The opinion in support of the decision being entered today was ***not*** written for publication and is ***not*** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHUNPEI YAMAZAKI
and SETSUO NAKAJIMA

Appeal No. 2005-2004
Application 09/760,499

HEARD: October 19, 2005

Before GARRIS, WARREN and WALTZ, *Administrative Patent Judges.*

WARREN, *Administrative Patent Judge.*

Decision on Appeal and Opinion

We have carefully considered the record in this appeal under 35 U.S.C. § 134, and based on our review, find that we cannot sustain the rejection of appealed claims 1 through 6, 16 through 19, 21 through 24, 26 through 30, 32 through 34 and 36 through 42 under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki et al. (Yamazaki '138) in view of the admitted prior art (specification, page 1, ll. 15 through 25, and page 2, ll. 1-6) and Yamazaki et al. (Yamazaki '456) (answer, pages 3-10).[1,2]

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[1] Claims 7 through 15, 20, 25, 31, 35 and 43 are also of record and have been withdrawn from consideration by the examiner under 37 CFR § 1.142(b). Claims 1 through 43 are all of the claims in the application. *See below* note 3 with respect to the copy of the appealed claims in the appendix to the brief.

[2] We have not considered US 2003/0217805, published November 27, 2003, relied on by appellants (brief, page 6, text and n. 1; reply brief, page 2) and by the examiner (answer, pages

We refer to the answer and to the brief and reply brief for a complete exposition of the positions advanced by the examiner and appellants.

We first interpret the claims by giving the terms thereof the broadest reasonable interpretation in their ordinary usage as they would be understood by one of ordinary skill in the art in light of the written description in the specification, unless another meaning is intended by appellants as established in the written description of the specification, and without reading into the claims any limitation or particular embodiment disclosed in the specification. *See, e.g., In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). The appealed independent claims 1, 4, 26 and 36 specify a method of manufacturing "a display device" which term is defined by appellants in the written description in the specification as "a generic term referring to a light-emitting device and a liquid crystal display device" (page 1, ll. 11-13). Appealed claims 1 and 4 further specify that the claimed method includes the step of "forming a light emitting element." In this respect, appellants describe a "luminous element[] that is comprised of a luminous material sandwiched between electrodes . . . hereinafter . . . referred to as [*sic*] light-emitting device," and in characterizing the prior art, acknowledge that the term "a light-emitting device" is "also called . . . a light-emitting diode or an EL[, that is, Electro Luminescence,] display device" which "is composed of a structure that has an EL element constructed of an anode, a cathode, and an EL material sandwiched therebetween" (*id.*, page 1, ll. 6-9 and 15-20). Thus, the step of form "a light emitting element" encompasses all of the steps required to form all of the semiconductor and other components of such "element." Appealed claim 36 further specifies forming semiconductor structure, including "pixel electrodes," in several steps prior to "forming a light emitting layer and a cathode on at least one of the pixel electrodes." We determine that in context, the term "light emitting layer" corresponds to the "luminous material"

9-10) because no content thereof has been identified as applicable prior art to the claimed invention by either party, and even if there was, the examiner has not included this patent document in the statement of the ground of rejection. *See In re Hoch*, 428 F.2d 1341, 1342 n. 3, 166 USPQ 406, 407 n.3 (CCPA 1970); *cf. Ex parte Raske*, 28 USPQ2d 1304, 1304-05 (Bd. Pat. App. & Int. 1993).

or "EL material" disclosed as "sandwiched between electrodes" which emits light when a voltage is applied between the electrodes, and thus, the specified steps form "a light emitting element" (*id.*, page 1, ll. 6-9 and 18-24; *see also*, e.g., page 8, ll. 8-21).

Appealed claim 26 further specifies that the claimed method include the step of "forming a display element[,] . . . the display element electrically connected to the switching element" formed in a prior step. We do not find the term "a display element" in the specification. We found above that the term "display device" is defined in the written description in the specification as encompassing both "a light-emitting device" and "a liquid crystal device." In this respect, appellants describe the disclosed invention as "a method of manufacturing a device having . . . [a] luminous element" or "a device having . . . [a] liquid crystal element" (*id.*, page 1, ll. 6-11). In similar manner to the description of a "luminous element," appellants describe "a liquid crystal element[] that is composed of a liquid crystal sandwiched between electrodes [] . . . hereinafter . . . referred to as [*sic*] liquid crystal display device" (*id.*, page 1, ll. 9-11). Indeed, specification Embodiment 1 involves a light-emitting display device wherein "pixel electrode 124 and the current control [electrode] TFT 202 are electrically connected to each other" and "the pixel electrode 124 functions as an anode of an EL element," and specification Embodiment 3 involves a liquid crystal display device in which "pixel TFT 704 . . . [is] used as a switching element for controlling a voltage applied to a liquid crystal" (*id.*, page 7, ll. 19-21, and page 15, ll. 22-23). Thus, we determine that on this record, the broad term "display element" encompasses both "a light-emitting element" and "a liquid crystal element." Accordingly, the step of "forming a display element" encompasses all of the steps required to form all of the semiconductor and other components associated with either "element."

The claimed methods encompassed by each of appealed independent claims 1, 4, 26 and 36 comprise at least the specified steps in the order stated, even though the transitional term "comprising" opens the claimed methods to additional steps and components. *See generally*, *Exxon Chem. Pats., Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1555, 35 USPQ2d 1801, 1802 (Fed. Cir. 1995) ("The claimed composition is defined as comprising - meaning containing at least - five specific ingredients."); *In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) ("As long as one of the monomers in the reaction is propylene, any other monomer may be

present, because the term 'comprises' permits the *inclusion* of other steps, elements, or materials."). Thus, the peeling layer is removed along with the first substrate subsequent to the step of "bonding a second substrate over" either "a light emitting element" in claims 1 and 4, or "a display element" in claim 26. In claim 36, the peeling layer is removed prior to "forming a light emitting layer and a cathode on at least one of the pixel electrodes"[3] with the first substrate removed subsequent to the step of "bonding a second substrate on the cathode."

The examiner finds that the method of Yamazaki '138 includes "forming (e.g. in a high temperature atmosphere) a semiconductor element (e.g., active layers, a gate insulating layer, gate electrodes, a first insulating layer, wiring, and pixel electrode/anode) on the insulating layer . . . , bonding a . . . second substrate . . . to the semiconductor element[,] . . . [and removing the peeling layer and the first substrate . . . to form the . . . display device" (answer, pages 4-5; see also pages 3-4). The examiner further finds that Yamazaki '138 would have disclosed that this method can be used to form both liquid crystal display devices and EL display devices, citing col. 6, ll. 47-49, and pointing out that the reference exemplifies only liquid crystal display devices (answer, page 5). The examiner submits that one of ordinary skill in this art would have used the method of Yamazaki '138

> to form an EL display device wherein included in the display device is a light emitting element, i.e.. pixel electrode/anode layer having a cathode layer applied to its upper surface with a layer of EL material sandwiched therebetween, coupled to the semiconductor element as it was well known in the art that an EL display device includes a light-emitting element as shown for example by the admitted prior art and . . . [Yamazaki '138] clearly [teaches] the method may be used o form an EL device. [*Id.*, original emphasis deleted; *see also* page 6, ll. 1-3.]

Appellants submit that

> Yamazaki '138 discloses, at best, formation of a portion of a liquid crystal element that is covered with flexible substrate 120, followed by use of the peeling layer (102) to remove substrate (101). Thus, formation of the liquid crystal display (e.g., addition of the second panel 122/123/124 and implantation of liquid -crystal material) does not occur until after the addition of the substrate 120 and the peeling of the layer 102 (to remove substrate 101). [Brief, page 4, original emphasis deleted; *see* Yamazaki '138, cols. 8-10 and **FIGs. 2**A through **4**; *see* also reply brief, page 2.]

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[3] We have quoted this claim limitation as it appears in claim 36 of record as of the amendment filed June 26, 2003. In this respect, the copy of appealed claim 36 in the appendix to the brief is in error.

Appellants acknowledge that Yamazaki '138 states that the process thereof can be used to prepare EL-type display units, but points out that the reference does not disclose that this can be done and argues the examiner has not established why one of ordinary skill in the art would have been motivated do so in a manner to arrive at the claimed invention (brief, pages 4-5). Appellants argue that the "admitted prior art" does no more than disclose "a structure of an example of an EL device" (*id.*, page 7).

In response, the examiner again points to the method of forming a semiconductor element and then removing the peeling layer before the rest of a liquid crystal display device is formed according to Yamazaki '138 **FIGs. 1** through **4**, and contends that "the differences for forming each [EL device and liquid crystal] device are extremely well known in the art" (answer, page 7). Thus, the examiner argues that one of ordinary skill in this art would have been led to modify the teachings of the reference to form the latter device by including "a light emitting element coupled to the semiconductor element," further pointing to a second "modification . . . not required by claim 1," wherein "liquid crystal elements []121, 122, 123, and 125 as shown in Figure 4[] would obviously be omitted" because "[a]n EL display device . . . is self-emitting" (*id.*, pages 7-8). The examiner further contends that "[n]one of the claims require forming a 'completed' light emitting element prior to peeling," and that Yamazaki '138 "suggests that any layers that require forming at high temperature should occur prior to peeling" the peeling layer and first substrate (*id.*, pages 8-9).

Appellants reply that "the pending claims recite that a light-emitting element/layer or display element is formed prior to removal of the recited peeling layer and first substrate," distinguishing Yamazaki '138 (reply brief, page 2).

We agree with appellants that the examiner has not established that one of ordinary skill in this art would have modified the method of Yamazaki '138 by removing the peeling layer and/or first substrate *after* the formation of "a light emitting element," "a display element" or structure constituting "a light emitting element" as specified by the steps of appealed claims 1, 4, 26 and 36 as we have interpreted these claims above. Even if the examiner established that one of ordinary skill in the art would have modified the method of the reference by either of the modifications he suggests based on the acknowledged similarity in the general structure of light-

emitting or display elements alone, *see B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) ("When obviousness is based on a particular prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. [Citation omitted.] This suggestion or motivation need not be expressly stated. [Citation omitted.]"), neither modification would result in the claimed methods involving light-emitting elements encompassed by appealed claims 1, 4 and 36, and the claimed methods involving EL display elements or liquid crystal display elements encompass by appealed claim 26. Indeed, the mere substitution of one type of display element for another or the omission of the formation of structure in this respect in the method of Yamazaki '138 does not change the order of steps taught by the reference. *See Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-54, 5 USPQ2d 1434, 1438-41 (Fed. Cir. 1988).

The examiner's decision is reversed.[4]

[4] A discussion of Yamazaki '456 is not necessary to our decision. *See In re Jones*, 958 F.2d 347, 349, 21 USPQ2d 1941, 1942 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 1302-04, 190 USPQ 425, 426-28 (CCPA 1976).

Reversed

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